

988-2

Metal/Nonmetal - Surface Fatalities Second Half - 1988



U.S. Department of Labor
Mine Safety and Health Administration

ABSTRACTS WITH ILLUSTRATIONS

ANALYSIS AND SUGGESTED USES

L 38.19/3:

INTRODUCTION

The 1988 Fatal Illustration Program is divided into four large categories or subject areas. These categories are underground coal mining; surface coal mining; underground metal/nonmetal mining; and surface metal/nonmetal mining.

The materials in this unit include illustrated abstracts (summaries) of all chargeable surface metal/nonmetal fatalities for the second six months of 1988 accompanied by 35mm slides, and a statistical analysis of the accidents in that category.

The analysis section retains the same format used in past years. This package of materials, through its abstracts, slides and statistics, has been an effective training tool for the mining industry, especially small mines. This program has been used by various companies in safety meetings, annual refresher training, new miner training, and task training.

Each year, we attempt to improve our Fatal Illustration Program based on comments received from the mining industry. In response to suggestions received on our 1987 Program, the second half of the 1988 Fatal Illustration Program is now available on videotape.

Since a large percentage of the 1988 fatalities were classified as powered haulage and several victims were contractor employees, the Academy is developing separate fatal illustration programs covering these two areas. These two programs are also available from the Academy at no cost.

How Companies Use the Fatal Illustration Program

Many mining companies use the Fatal Illustration Program to train supervisory and nonsupervisory personnel. The abstracts, slides and statistics readily lend themselves to group safety training, new miner training, and task training.

Following are quotations from various mining companies and organizations that use this material in their training programs:

"These slides and written descriptive comments will be a part of our annual refresher courses."

Bromley Mine & Mill

"The pictures and explanations of accidents make for an excellent training aid."

City of Duluth, Minnesota

"The incidents listed are very thorough and I feel that they are a real benefit to other employees that are in the same occupations."

Millers Ave. Energy Co., Inc.

"I want you to know that these slides of real world accidents open the eyes of our students to what the real world can be like. The old adage 'a picture is worth a thousand words' truly applies in this context."

Colorado School of Mines

"These slides are excellent in depicting dangers to students who will soon be employed in the industry. They make a lasting impression."

West Virginia University

Fatalities - Surface Metal/Nonmetal Mines - Second Half 1988

Statistical Analysis

Twenty-three fatal accidents occurred at surface metal/nonmetal mines during July through December 1988.

Victim's Experience

- Almost 48 percent of the victims were less than 30 years old.
- Forty-four percent of the victims had less than one year's experience on the job they were doing when they were fatally injured.

Accident Classification

- Powered haulage accounted for 40 percent of fatalities and machinery for 18 percent.

Victim's' Occupation

- Truck drivers, supervisors, and laborers each accounted for 18 percent of the fatalities.
- Contractor employees accounted for approximately 48 percent of the fatalities.

Mining Operation

- Crushed stone operations accounted for 40 percent of the fatalities.

Mine Size

- Sixty-five percent of all first half fatalities occurred in large mines (20 or more employees).

Fatalities by Victim's Age Surface Metal/Nonmetal 1988

This Table Shows Fatalities by Age of Victim

First Half 1988

<u>Age (Years)</u>	<u>Number of Fatalities</u>
18-19	2
20-25	2
31-35	2
36-40	1
41-45	3
46-50	1
51-55	3
56-60	2
66-70	1

Second Half 1988

<u>Age (Years)</u>	<u>Number of Fatalities</u>
18-20	2
21-25	3
26-30	6
31-35	2
36-40	3
41-45	4
46-50	1
56-60	2

Fatalities by Victim's Experience **Surface Metal/Nonmetal 1988**

This Table Shows Fatalities by Victim's Experience

First Half 1988

<u>Experience (Years)</u>	<u>Mining Experience</u>	<u>Job Experience</u>	<u>Experience This Mine</u>
0 - 6 mos.	2	6	4
6 mos.-1 yr.	1	1	2
2 - 3 yrs.	1	2	2
4 - 5 yrs.	1	3	2
6 - 7 yrs.	1	-	-
10 - 11 yrs.	1	1	-
12 - 13 yrs.	1	1	1
14 - 15 yrs.	1	1	-
20 - 21 yrs.	2	1	1
24 - 25 yrs.	1	-	-
26 - 27 yrs.	1	-	1
40 +	1	1	1
Unknown	2	-	2
N/A	1	-	1

Second Half 1988

<u>Experience (Years)</u>	<u>Mining Experience</u>	<u>Job Experience</u>	<u>Experience This Mine</u>
0 - 6 mos.	5	8	8
6 mos. - 1 yr.	-	2	1
1 - 2 yrs.	2	5	3
3 - 4 yrs.	-	2	1
4 - 5 yrs.	1	2	-
5 - 6 yrs.	-	3	1
6 - 7 yrs.	1	-	1
7 - 8 yrs.	2	-	-
9 - 10 yrs.	1	-	1
11 - 12 yrs.	-	1	-
15 - 16 yrs.	2	-	3
16 - 17 yrs.	1	-	2
18 - 19 yrs.	1	-	-
20 - 23 yrs.	2	-	-
Unknown	5	-	2

Fatalities by Accident Classification Surface Metal/Nonmetal 1988

This Table Shows Fatalities by Accident Classification

<u>Classification</u>	<u>Fatalities (1st Half '88)</u>	<u>Fatalities (2nd Half '88)</u>	<u>Fatalities (Total '88)</u>
Powered Haulage	8	9	17
Machinery	5	4	9
Electrical	2	1	3
Fall of Highwall	1	-	1
Falling Material	-	3	3
Fall of Person	-	3	3
Handling Material	-	1	1
Hoisting	-	1	1
Other	1	1	2

Fatalities by Victim's Occupation Surface Metal/Nonmetal 1988

This Table Shows Fatalities by Victim's Occupation

<u>Occupation</u>	<u>Fatalities (1st Half '88)</u>	<u>Fatalities (2nd Half '88)</u>	<u>Fatalities (Total '88)</u>
Conveyor Line Oiler	-	1	1
Breaker Operator	-	1	1
Crusher Helper	-	1	1
Crusher Operator	1	1	2
Diver	1	-	1*
Drill Operator	-	1	1
Electrician	1	-	1
Equipment Operator	1	1	2
Laborer	3	4	7*
Loader Operator	1	2	3*
Mechanic/Welder	1	1	2*
Repairman Helper	-	1	1*
Supervisor	1	4	5
Shovel Operator	1	-	1
Tire Repairman	-	1	1*
Truck Driver	6	4	10*

*Includes 11 contractor employees

Fatalities by Mine Size Surface Metal/Nonmetal 1988

This Table Shows Fatalities by Size of Mine

<u>Mine Size</u>	<u>Fatalities (1st Half '88)</u>	<u>Fatalities (2nd Half '88)</u>	<u>Fatalities (Total '88)</u>
Small*	6	8	14
Large**	11	15	26

* Less than 20 employees

** 20 or more employees

Fatalities by Mining Operation Surface Metal/Nonmetal 1988

This Table Shows Fatalities by Type of Mining Operation

<u>Mining Operation</u>	<u>Fatalities (1st Half '88)</u>	<u>Fatalities (2nd Half '88)</u>	<u>Fatalities (Total '88)</u>
Cement Plant	1	3	4
Copper	2	1	3
Crushed Stone	4	9	13
Gold	2	2	4
Lime Plant	-	1	1
Limestone (cement)	-	2	2
Phosphate	3	-	3
Sand	-	1	1
Sand and Gravel	4	3	7
Shale	1	-	1
Taconite	-	1	1

SLIDE INDEX

Fatalities by Occupation Surface Metal/Nonmetal - Second Half 1988

You will find fatalities that happened to:

BREAKER OPERATORS on slide 27
CONVEYOR LINE OILERS on slide 26
CRUSHER HELPERS on slide 35
CRUSHER OPERATORS on slide 33
DRILL OPERATORS on slide 28
EQUIPMENT OPERATORS on slide 22
LABORERS on slides 19, 23, 31, and 34
LOADER OPERATORS on slides 18 and 25
MACHANICS/WELDERS on slide 30
REPAIRMAN HELPERS on slide 37
SUPERVISORS on slides 20, 32, 36, and 38
TIRE REPAIRMEN on slide 29
TRUCK DRIVERS on slides 21 and 24

Fatalities by Accident Classification Surface Metal/Nonmetal - Second Half 1988

You will find:

ELECTRICAL fatalities on slide 35
FALL OF PERSON fatalities on slides 30, 31, and 32
FALLING MATERIAL fatalities on slides 33 and 34
HANDLING MATERIAL fatalities on slide 36
HOISTING fatalities on slide 37
MACHINERY fatalities on slides 22, 27, 28, and 29
OTHER fatalities on slide 38
POWERED HAULAGE fatalities on slides 18, 19, 20, 21, 23,
24, 25, and 26

SLIDE INDEX

Fatalities by Type of Mining Operation Surface Metal/Nonmetal - Second Half 1988

You will find fatalities that happened at:

CEMENT PLANT operations on slides 30, 36, and 37

COPPER operations on slide 31

CRUSHED STONE operations on slides 23, 24, 25, 27, 28, 29,
33, and 34

GOLD operations on slides 19 and 26

LIME PLANT operations on slide 32

LIMESTONE (CEMENT) operations on slide 21

SAND operations on slide 20

SAND AND GRAVEL operations on slides 18, 22, and 35

TACONITE operations on slide 38

Fatalities by Mine Size Surface Metal/Nonmetal - Second Half 1988

You will find fatalities that happened at:

SMALL MINES* on slides 20, 22, 24, 25, 27, 29, 30, and 35

LARGE MINES** on slides 18, 19, 21, 23, 26, 28, 31, 32, 33,
34, 36, 37, and 38

* Less than 20 employees

** 20 or more employees

ABSTRACT OF INVESTIGATION

Date: July 19, 1988

Slide Number: 18 Fatal Case Number: 28

Accident Classification: Powered Haulage

Type of Mine: Sand and Gravel - Surface

Location: California

Age of Victim: 47

Total Mining Experience: Unknown

Total Experience at this Mine: 10 months

Total Experience this Job: 4 months

Number Employed at Mine: 60

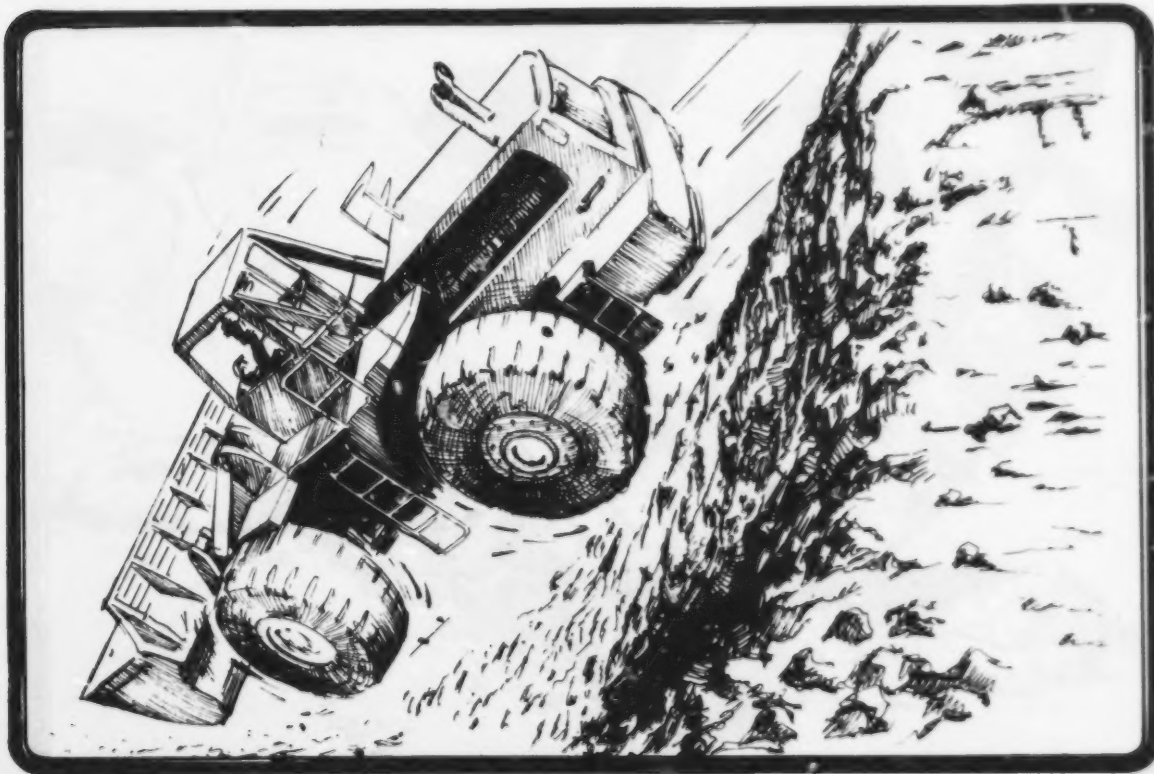
Number Working at Time of Accident: 18

Time of Accident: 1:30 a.m.

A loader operator was fatally injured when the loader he was operating ran off the pit haul road. Immediately preceding the accident, the victim was told to go to the pit area and load two loads of clay into a bottom dump truck. For reasons unknown, the victim stopped at the top of the haul road and turned off the headlights. After waiting for two bottom dump trucks coming up the road to pass, he proceeded down the road with his lights still off. The loader travelled through an inadequate section of berm approximately 342 feet from the starting point. The loader went off the edge at a 45 degree angle, flipped upside down and fell approximately 40 feet. The ROPS canopy was flattened sideways and the victim was crushed inside the cab. The investigation revealed that the loader was mechanically sound and well maintained. No attempt was made to engage the emergency brake or drop the bucket to try to bring the loader to a stop before going over the edge.

Means of Prevention:

Berms or guardrails shall be provided and maintained on the banks of roadways. Berms or guardrails shall be at least mid-axle high of the largest self-propelled mobile equipment which usually travels the roadway.



ABSTRACT OF INVESTIGATION

Date: August 18, 1988

Slide Number: 19 Fatal Case Number: 29

Accident Classification: Powered Haulage

Type of Mine: Gold - Surface

Location: South Carolina

Age of Victim: 30

Total Mining Experience: 3 months

Total Experience at this Mine: 3 months

Total Experience this Job: 3 months

Number Employed at Mine: 56 (contractor)

Number Working at Time of Accident: Unknown

Time of Accident: 11:25 a.m.

A contractor laborer was fatally injured when a scraper backed over him. The victim had been spotting for four scraper operators and a track dozer operator who were working on a barge ramp construction project. After dumping their loads the scrapers had to back up due to the narrow width of the dumping area. The victim was struck approximately 50 feet from the point where the empty scraper started backing up. The operator of the scraper did not notice the victim until he was approximately 100 feet beyond the point of impact.

Means of Prevention:

1. Operators shall be certain, by signal or other means, that all persons are in the clear before starting or moving equipment.
2. Additional training specifically directed to each task or job classification in hazard recognition and accident prevention may prevent a similar accident.



ABSTRACT OF INVESTIGATION

Date: August 24, 1988

Slide Number: 20 Fatal Case Number: 31

Accident Classification: Powered Haulage

Type of Mine: Sand - Surface

Location: Oklahoma

Age of Victim: 57

Total Mining Experience: 8 years

Total Experience at this Mine: 1 month

Total Experience this Job: 1 month

Number Employed at Mine: 2

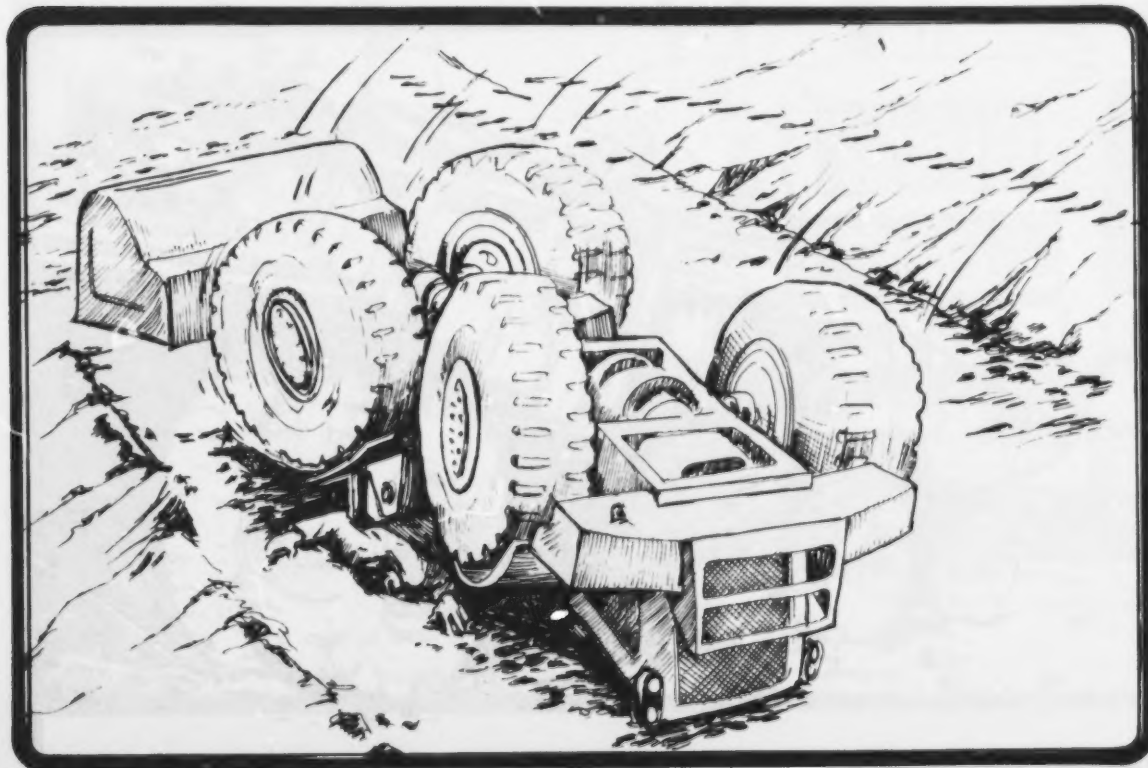
Number Working at Time of Accident: 1

Time of Accident: 2:45 p.m.

A mine partnership owner/operator was fatally injured when the front-end loader he was operating overturned. The normal procedure for loading was to fill the bucket with sand from the creek bed, drive up an incline, empty the bucket into a dump truck and back straight down the incline to the creek bed. Possibly because of his inexperience or for some other reason, he failed to back straight down the ramp and backed up onto an embankment. The victim was either thrown from or tried to jump from the overturning loader and was pinned between the loader and the ground. The loader was not equipped with a rollover protective structure or seat belts.

Means of Prevention:

1. Personnel should be provided with proper task and safety training before operating any equipment.
2. Any front-end loader operating in an area where there is a danger of turning over should be equipped with rollover protection.



ABSTRACT OF INVESTIGATION

Date: September 1, 1988
Slide Number: 21 Fatal Case Numbers: 32 & 39
Accident Classification: Powered Haulage
Type of Mine: Limestone (Cement) - Surface
Location: California

	Case #32	Case #39
Age of Victims:	37	59
Total Mining Experience:	16 years	Unknown
Total Experience at this Mine:	16 years	17 years
Total Experience this Job:	5 years	6 years
Number Employed at Mine:	339	
Number Working at Time of Accident:	Unknown	
Time of Accident:	10:00 a.m.	

Two truck drivers were fatally injured when the haul trucks they were operating collided head-on. The drivers of the two 50-ton haul trucks were hauling material from the quarry to a stockpile. One truck was coming down from the quarry loaded and the other was driving up the road empty. For reasons unknown the driver of the empty truck crossed over into the path of the loaded truck and they collided. The loaded truck skidded for 112 feet prior to impact and ran up on a berm in an apparent effort to avoid the oncoming truck.

Means of Prevention:

Operators of self-propelled mobile equipment shall maintain control of the equipment while it is in motion.



ABSTRACT OF INVESTIGATION

Date: September 7, 1988
Slide Number: 22 Fatal Case Number: 33
Accident Classification: Machinery
Type of Mine: Sand and Gravel - Surface
Location: Illinois

Age of Victim: 22
Total Mining Experience: 6 years, 4 months
Total Experience at this Mine: 6 years, 4 months
Total Experience this Job: 4 years, 6 months
Number Employed at Mine: 7
Number Working at Time of Accident: 7
Time of Accident: 8:10 a.m.

An equipment operator was fatally injured when he was crushed between two scrapers. The victim was attempting to jump-start the scraper that he had been assigned to operate. He signaled another scraper operator to move his unit into position so that jumper cables could be hooked up. The operator of this unit moved to within one foot of the disabled scraper, dropped the pan, and placed the gear shift in neutral. He then got off the scraper to assist with the jump-start. As he walked around in front, he saw his scraper move and pin the victim about waist high between the bumpers.

Means of Prevention:

Mobile equipment shall not be left unattended unless the controls are placed in the park position and the parking brake, if provided, is set.



ABSTRACT OF INVESTIGATION

Date: October 12, 1988

Slide Number: 23 Fatal Case Number: 40

Accident Classification: Powered Haulage

Type of Mine: Crushed Stone - Surface

Location: New York

Age of Victim: 42

Total Mining Experience: 5 months

Total Experience at this Mine: 5 months

Total Experience this Job: 5 months

Number Employed at Mine: 25

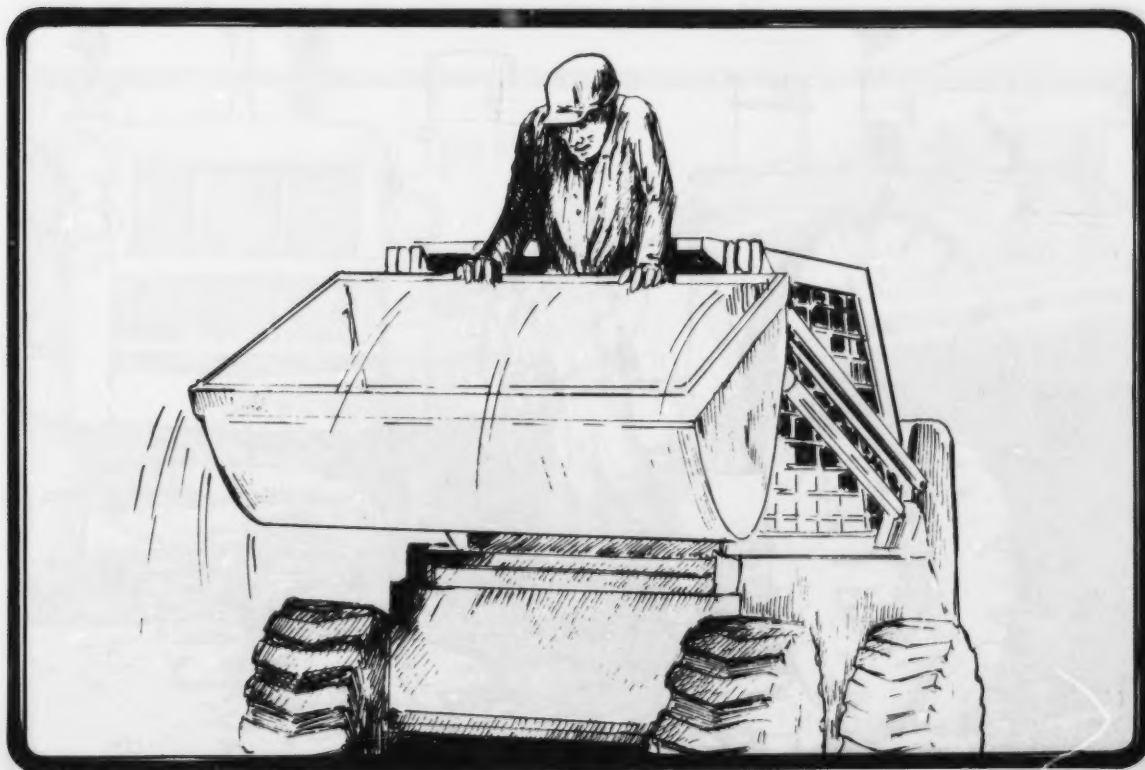
Number Working at Time of Accident: 25

Time of Accident: 1:40 p.m.

A laborer was fatally injured when he was crushed between the boom arm and rollover protective structure (ROPS) of the bobcat loader he was operating. Evidence found at the scene indicated that the victim was attempting to elevate and secure a water line so that he could gain access to an area that needed to be cleaned up. He used the loader bucket to raise the water pipe and was reaching out of the cab to tie the pipe to the plant structure. Apparently his leg bumped the boom control lever causing the boom arm to raise and pin him against the ROPS framework.

Means of Prevention:

Persons shall not work on or from a piece of mobile equipment in a raised position until it has been securely blocked in place.



ABSTRACT OF INVESTIGATION

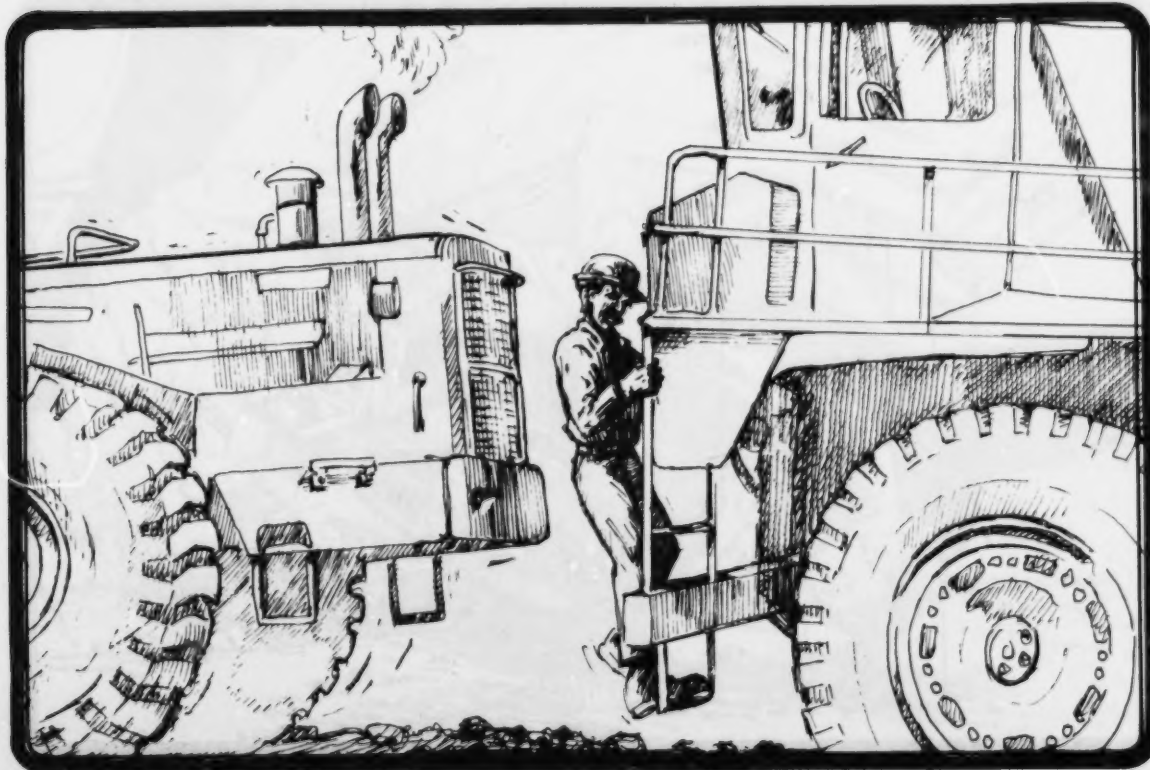
Date: October 24, 1988
Slide Number: 24 Fatal Case Number: 43
Accident Classification: Powered Haulage
Type of Mine: Crushed Stone - Surface
Location: Iowa

Age of Victim: 36
Total Mining Experience: 16 years, 5 months
Total Experience at this Mine: 16 years, 5 months
Total Experience this Job: 6 years
Number Employed at Mine: 12
Number Working at Time of Accident: 12
Time of Accident: 9:30 a.m.

A truck driver was fatally injured when he was pinned between a front-end loader and a haulage truck. The victim parked his truck behind an operating front-end loader and started to descend the ladder. The operator of the front-end loader was in the process of cleaning up scattered material and placing it back on the muck pile. This process involves a series of back and forth sweeps to gather up the scattered stone. The loader operator did not see the victim's truck enter the work area and was not looking to the rear when the collision occurred. After sensing that he had struck something he pulled the loader forward about 8 feet and saw the victim on the ground. The victim did not enter the area via the normal traffic pattern but instead approached from the opposite direction.

Means of Prevention:

1. Employees should be trained and retrained in the hazards associated with front-end loader operations.
2. Persons entering areas where heavy duty mobile equipment is being operated should adhere to established traffic patterns. If unable to do so efforts should be made to make their presence known.
3. Operators of heavy duty mobile equipment should be constantly alert for persons entering or working in their areas of operation.



ABSTRACT OF INVESTIGATION

Date: November 1, 1988

Slide Number: 25 Fatal Case Number: 44

Accident Classification: Powered Haulage

Type of Mine: Crushed Stone - Surface

Location: Oklahoma

Age of Victim: 41

Total Mining Experience: 23 years (mining related)

Total Experience at this Mine: 1 year, 7 months

Total Experience this Job: 1 year, 7 months

Number Employed at Mine: 14

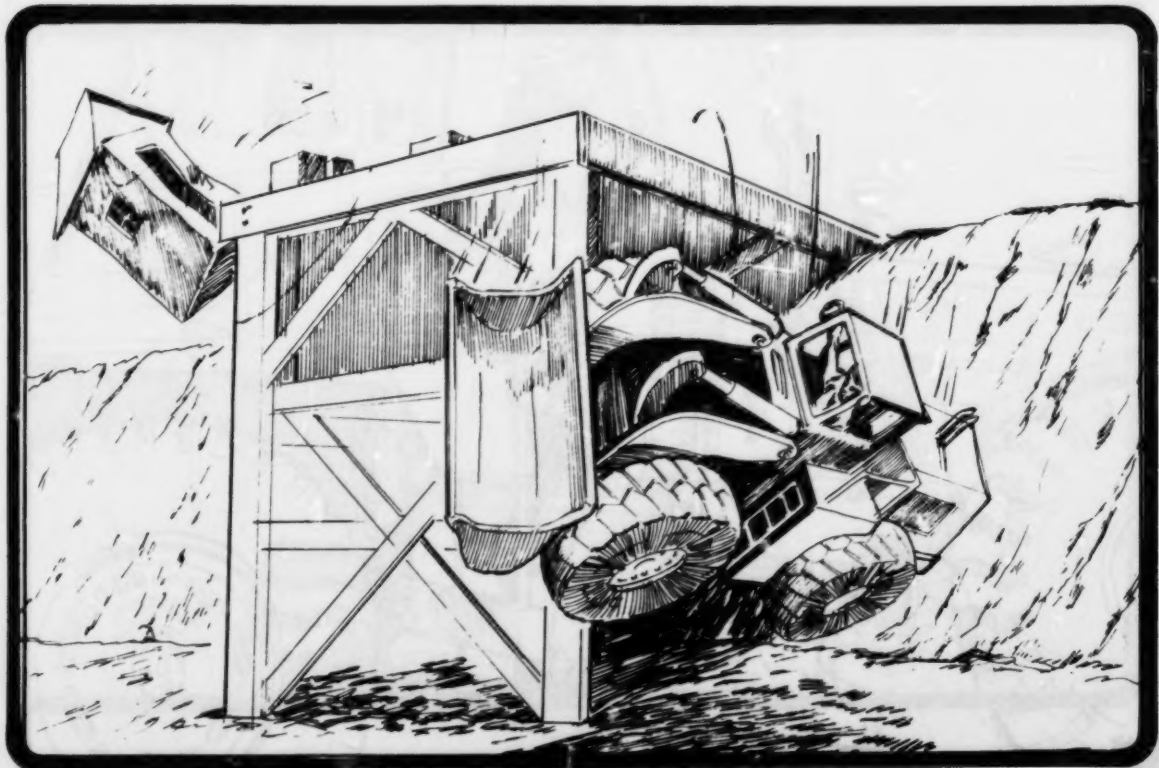
Number Working at Time of Accident: Unknown

Time of Accident: 2:00 p.m.

A front-end loader operator was fatally injured when he lost control of the loader he was operating. The victim was dumping material into a crusher feed hopper when he failed to stop and traveled forward into the hopper. The loader continued across the feed chute, struck the crusher control room knocking it to the ground, hit the crusher drive motor, and fell to the ground below. The crusher operator who was in the control room at the time was uninjured. The loader, which was not equipped with ROPS or a seat belt, landed on its top crushing the victim inside the cab. The investigation revealed that forward - reverse control was lost when the link pin fell out of the transmission directional control rod clevis.

Means of Prevention:

1. Berms, bumper blocks, safety hooks, or similar devices shall be provided at dumping locations where there is a hazard of overtravel or overturning.
2. Rollover protective structures (ROPS) and seat belts shall be installed on wheel loaders and wheel tractors.



ABSTRACT OF INVESTIGATION

Date: November 7, 1988

Slide Number: 26 Fatal Case Number: 46

Accident Classification: Powered Haulage

Type of Mine: Gold - Surface

Location: Nevada

Age of Victim: 21

Total Mining Experience: Unknown

Total Experience at this Mine: 3 weeks

Total Experience this Job: 3 weeks

Number Employed at Mine: 29

Number Working at Time of Accident: Unknown

Time of Accident: 2:55 a.m.

A conveyor line oiler was fatally injured when he was run over by a front-end loader while he was walking near a feed hopper approach ramp. The victim was performing his regular duties which consisted of general maintenance activities throughout the crushing plant. A front-end loader had been feeding material to the feed hopper for about 20 minutes prior to the accident. The loader operator, after dumping a bucket load into the hopper, checked his rearview mirrors and, upon observing that the area appeared to be clear, backed up. The left rear travel light on the front-end loader was not operating and may have contributed to the operators inability to see the victim.

Means of Prevention:

1. New miners shall receive no less than 24 hours of training.
2. Self-propelled mobile equipment to be used during a shift shall be inspected by the equipment operator before being placed in operation on that shift. Defects that affect safety shall be corrected in a timely manner.



ABSTRACT OF INVESTIGATION

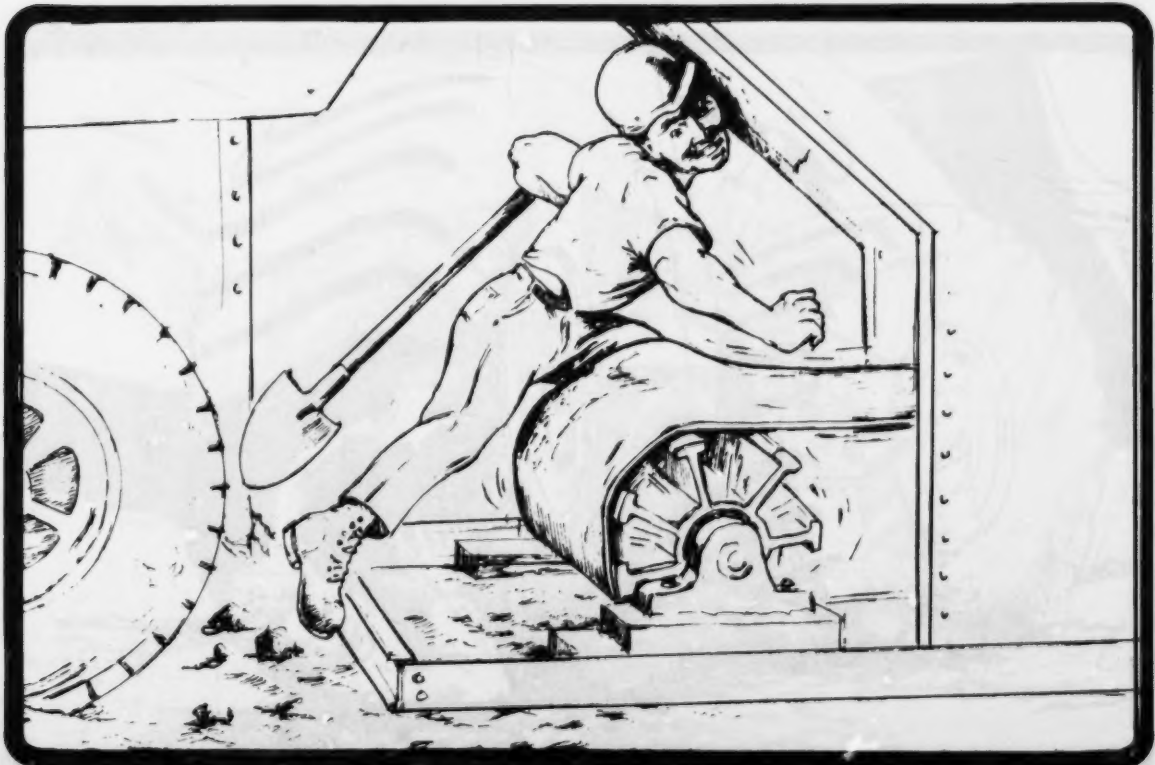
Date: August 20, 1988
Slide Number: 27 Fatal Case Number: 30
Accident Classification: Machinery
Type of Mine: Crushed Stone - Surface
Location: Wisconsin

Age of Victim: 19
Total Mining Experience: 6 months
Total Experience at this Mine: 6 months
Total Experience this Job: 6 months
Number Employed at Mine: 8
Number Working at Time of Accident: 4
Time of Accident: 12:45 a.m.

An apprentice breaker operator was fatally injured when he became entangled in a self-cleaning tail pulley. The victim was last seen performing clean-up work with a shovel about 40 feet away from the site of the accident. It could not be determined why the victim decided to cut through the area of restricted clearance beneath the primary crusher. He may have fallen into the pulley or possibly got too close and an article of clothing got caught by one of the self-cleaning tail pulley blades. The pinch points of the tail pulley were not guarded.

Means of Prevention:

Moving machine parts shall be guarded to protect persons from contacting moving parts that can cause injury. Guards shall not be required where the exposed moving parts are at least seven feet away from walking or working surfaces.



ABSTRACT OF INVESTIGATION

Date: October 14, 1988

Slide Number: 28 Fatal Case Number: 41

Accident Classification: Machinery

Type of Mine: Crushed Stone - Surface

Location: Alabama

Age of Victim: 27

Total Mining Experience: 7 years

Total Experience at this Mine: 3 years

Total Experience this Job: 1 year

Number Employed at Mine: 48

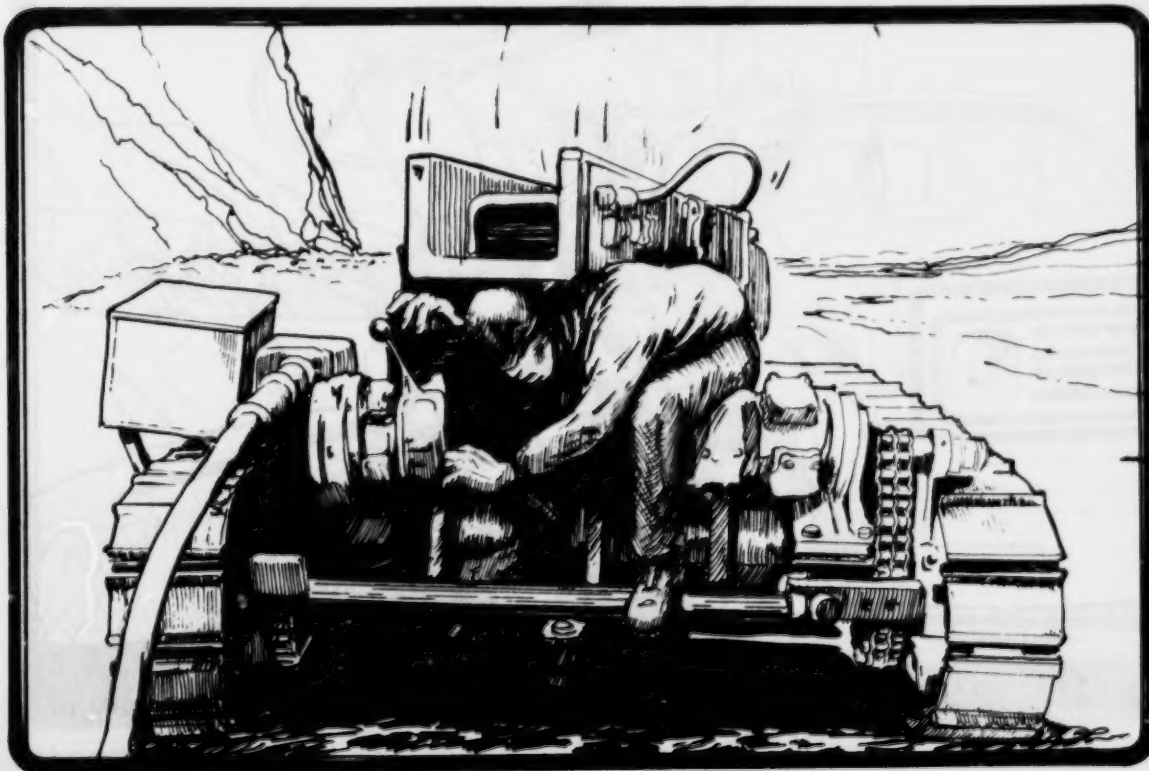
Number Working at Time of Accident: 33

Time of Accident: 7:40 a.m.

A drill operator was fatally injured when the mast of a track drill fell and struck him on the head. The victim and two coworkers were moving the drill along a perimeter service road adjacent to the quarry. The drill steel was in place, the hammer was at the top of the mast, and the mast was positioned above the victim at an angle of approximately 45 degrees from the horizontal. After they had traveled a short distance, the mast positioning cylinder pin came out and the mast fell. Holes were drilled at each end of the pin so it could be secured in place with cotter pins or small bolts. One end of the pin was not secured.

Means of Prevention:

1. When a drill is being moved from one drilling area to another, drill steel, tools, and other equipment shall be secured and the mast placed in a safe position.
2. Training and retraining of employees emphasizing employee task training and hazard recognition should help prevent recurrence of similar accidents.



ABSTRACT OF INVESTIGATION

Date: August 31, 1988
Slide Number: 29 Fatal Case Number: 48
Accident Classification: Machinery
Type of Mine: Crushed Stone - Surface
Location: Pennsylvania

Age of Victim: 27
Total Mining Experience: Unknown
Total Experience at this Mine: Unknown
Total Experience this Job: 1 year, 5 months (Contractor)
Number Employed at Mine: 13
Number Working at Time of Accident: 1 (Victim)
Time of Accident: After 1:00 a.m. and before 7:15 a.m.

A tire repairman employed by an independent contractor was fatally injured when he was pinned against his tire service vehicle by the articulating crane boom mounted on the vehicle. The victim was attempting to change the two front tires on a mine haulage truck. Evidence at the scene suggested that he either: swung the boom and was pinned against the controls, causing hydraulic pressure to build to the point where a hose burst and allowed him to fall to the ground; or the hose burst causing the boom to swing and crush him against the controls.

Means of Prevention:

The facts and circumstances surrounding this accident made it impossible to determine the direct cause; therefore, no preventative measures can be recommended.



ABSTRACT OF INVESTIGATION

Date: September 23, 1988

Slide Number: 30 Fatal Case Number: 36

Accident Classification: Fall of Person

Type of Mine: Cement Plant - Surface

Location: South Carolina

Age of Victim: 33

Total Mining Experience: Unknown

Total Experience at this Mine: 10 days

Total Experience this Job: 2 years (Contractor)

Number Employed at Mine: 6 (Contractor)

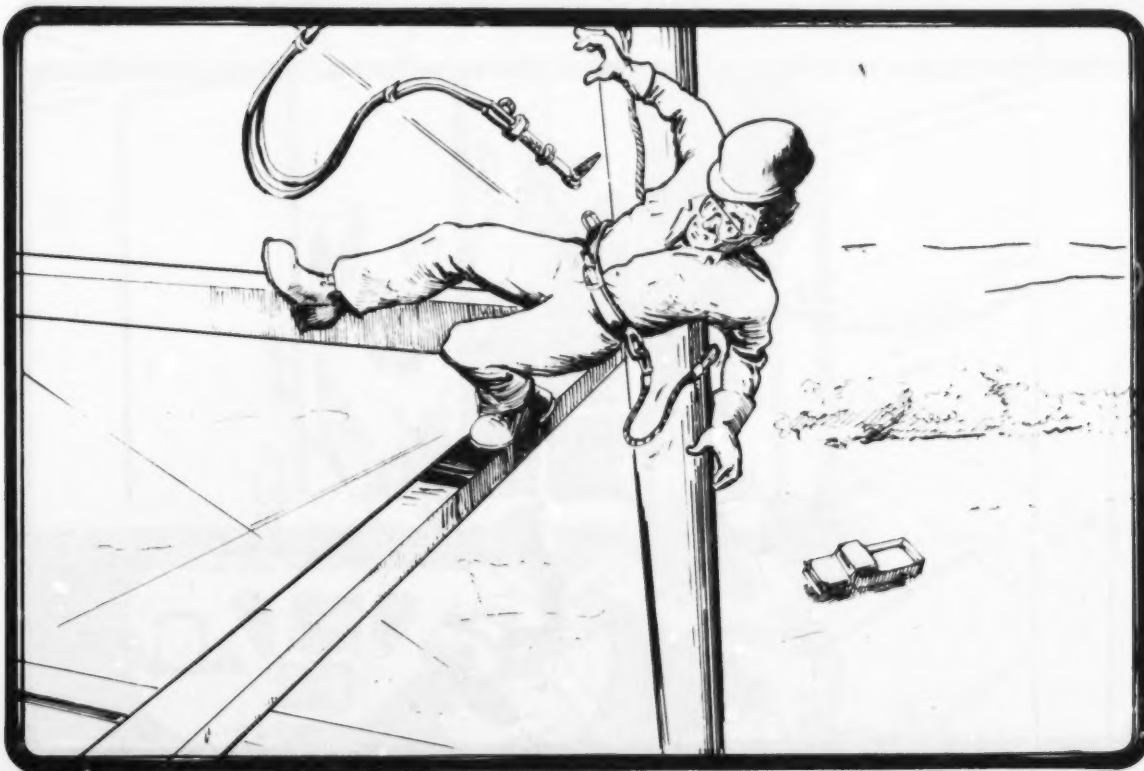
Number Working at Time of Accident: Unknown

Time of Accident: 2:10 p.m.

A mechanic/welder employed by an independent contractor was fatally injured when he fell approximately 93 feet off a water tank structure that was under construction. The victim was observed in a sitting position straddling a strut located about 93 feet above the ground. The victim stopped welding and started to stand up. While getting to his feet, he slipped and fell to the ground. The investigation revealed that the victim probably unhooked the lanyard on the left side of his safety belt when he sat down on the strut, and either forgot or failed for some other reason to connect the lanyard on his right side.

Means of Prevention:

Safety belts and lines shall be worn when persons work where there is danger of falling.



ABSTRACT OF INVESTIGATION

Date: October 6, 1988
Slide Number: 31 Fatal Case Number: 37
Accident Classification: Fall of Person
Type of Mine: Copper - Surface
Location: Arizona

Age of Victim: 20
Total Mining Experience: 3 weeks
Total Experience at this Mine: 3 weeks
Total Experience this Job: 3 weeks
Number Employed at Mine: 45 (Contractor)
Number Working at Time of Accident: Unknown
Time of Accident: 12:45 p.m.

A laborer, employed by an independent contractor, was fatally injured when he fell approximately 50 feet to the ground while attempting to climb structural steel on a mobile crusher tower that was under construction. While climbing a diagonal brace between the 37 foot level and the 48 foot level, he apparently lost his grip and fell. He was wearing a safety belt with a lanyard, but was not using it as he climbed.

Means of Prevention:

1. Safety belts and lines shall be worn when persons work where there is danger of falling. Static lines or other devices should be installed to facilitate the use of lanyards when persons are required to climb on structural steel.
2. Safe means of access shall be provided and maintained to all working places.



ABSTRACT OF INVESTIGATION

Date: November 2, 1988

Slide Number: 32 Fatal Case Number: 45

Accident Classification: Fall of Person

Type of Mine: Lime Plant - Surface

Location: Illinois

Age of Victim: 41

Total Mining Experience: 19 years

Total Experience at this Mine: 17 years

Total Experience this Job: 4 years

Number Employed at Mine: 69

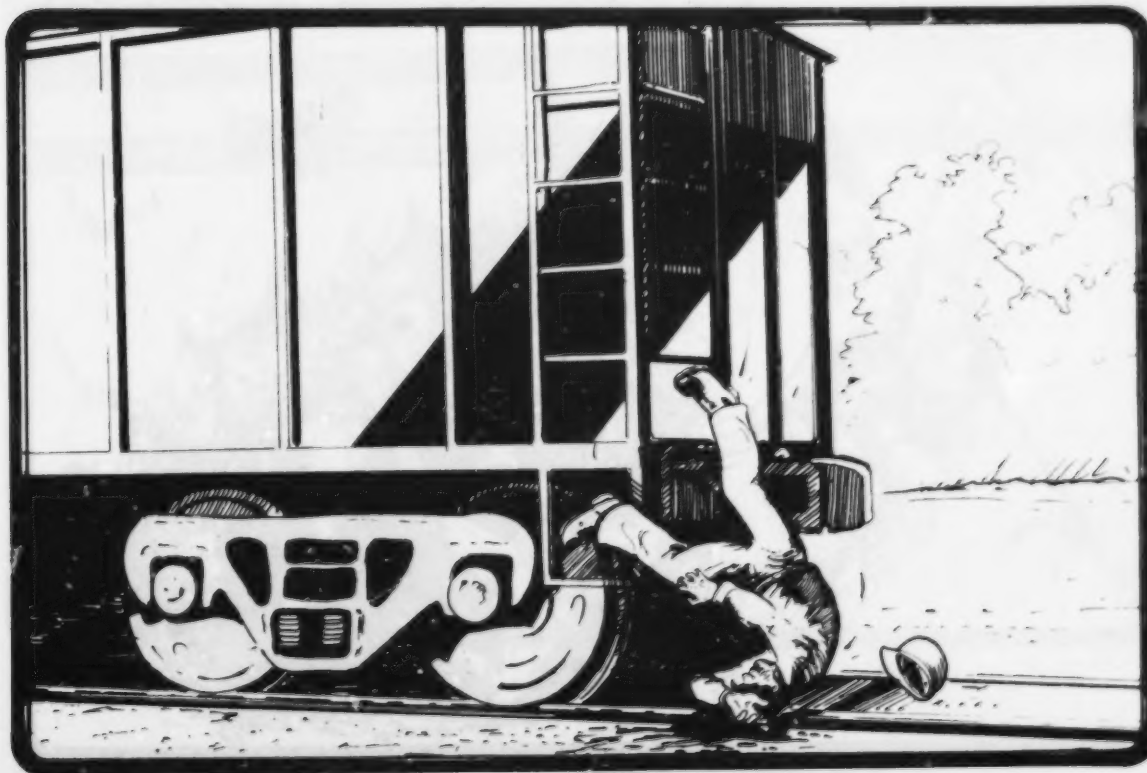
Number Working at Time of Accident: Unknown

Time of Accident: 11:25 a.m.

A materials supervisor was fatally injured when he fell about 12 feet from the top of a railroad car to the ground. The victim was sealing doors on top of the car. Although no one observed him fall, it is assumed that he fell as a result of a damaged walkway. Both walkways located on top of the railroad car were extensively damaged with sections broken away and pieces sticking up and out of place. One section, near the point where the victim fell, had pieces of walkway bent upward which could have caused the victim to trip.

Means of Prevention:

1. Defective items, including self-propelled mobile equipment, shall be taken out of service, or a tag or other effective method of marking the defective items shall be used to prohibit further use until the defects are corrected.
2. Safety belts and lines shall be worn when persons work where there is danger of falling.



ABSTRACT OF INVESTIGATION

Date: July 5, 1988

Slide Number: 33 Fatal Case Numbers: 24 & 25

Accident Classification: Falling Material

Type of Mine: Crushed Stone - Surface

Location: Virginia

	Case #24	Case #25
Age of Victims:	28	33
Total Mining Experience:	1 yr., 3 mos.	1 yr., 4 mos.
Total Experience at this Mine:	1 yr., 3 mos.	1 yr., 4 mos.
Total Experience this Job:	1 yr., 3 mos.	1 yr., 4 mos.
Number Employed at Mine:	38	
Number Working at Time of Accident:	38	
Time of Accident:	10:55 a.m.	

A crusher operator and a truck driver were fatally injured by an inrush of material as they attempted to dislodge a plug-up from a transfer hopper. The two victims were standing on the material in the center of the hopper probing the plug-up with a 10-foot section of water pipe. Neither victim was wearing a safety belt and line. Blockages in this bin were relatively frequent and generally confined to the bottom one-third of the bin, and safety belts and lines were worn and tended. On this occasion, however, the blockage was located above the normal location which caused the material to bridge over and fill the bin to capacity. The victims, not realizing that a void existed below, decided not to use safety belts and lines.

Means of Prevention:

1. Bins, hoppers, silos, tanks and surge piles shall be equipped with mechanical devices or other effective means of handling materials so that persons are not required to enter or work where they are exposed to entrapment by caving or sliding of materials.
2. Persons entering any of the above facilities shall wear a safety belt or harness equipped with a lifeline. A second person shall be nearby to constantly adjust the lifeline.



ABSTRACT OF INVESTIGATION

Date: December 6, 1988

Slide Number: 34 Fatal Case Number: 49

Accident Classification: Falling Material

Type of Mine: Crushed Stone - Surface

Location: New Jersey

Age of Victim: 43

Total Mining Experience: 20 years

Total Experience at this Mine: 6 years

Total Experience this Job: 6 years

Number Employed at Mine: 50

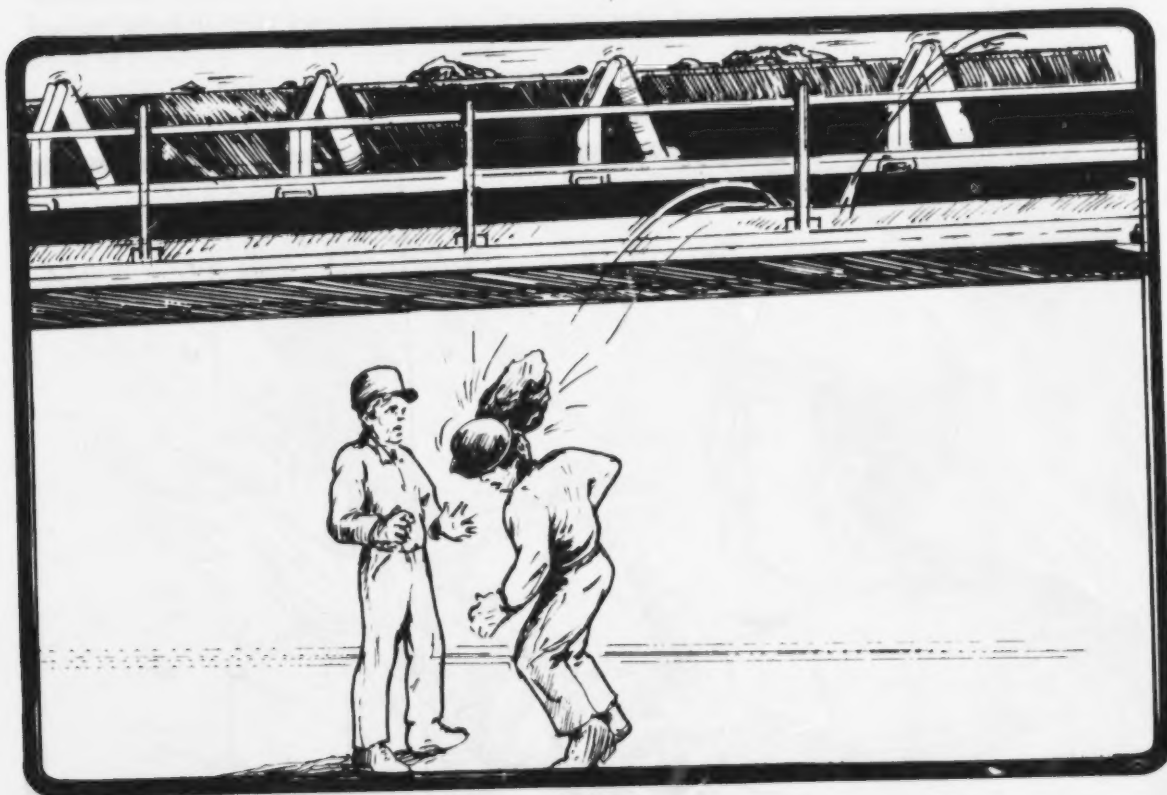
Number Working at Time of Accident: 40

Time of Accident: 7:10 a.m.

A laborer was fatally injured when he was struck by a falling rock. The victim was standing under an elevated conveyor talking with a fellow employee when a large rock either rolled off the conveyor or was propelled from the crusher feeder above. The victim was struck in the temple area.

Means of Prevention:

In areas where flying or falling materials generated from the operation of screens, crushers, or conveyors present a hazard, guards, shields, or other devices that provide protection against such flying or falling materials shall be provided to protect persons.



ABSTRACT OF INVESTIGATION

Date: July 1, 1988

Slide Number: 35 Fatal Case Number: 26

Accident Classification: Electrical

Type of Mine: Sand and Gravel - Surface

Location: Minnesota

Age of Victim: 23

Total Mining Experience: 2 months

Total Experience at this Mine: 2 months

Total Experience this Job: 2 months

Number Employed at Mine: 3

Number Working at Time of Accident: 3

Time of Accident: 9:40 a.m.

A crusher helper was fatally injured when a stacker conveyor that he was helping to move contacted a 7,200-volt phase line of an overhead 12,400-volt transmission line. A front-end loader was used to reposition the stacker conveyor. The victim, who had been giving hand signals to the loader operator, attempted to stop the stacker by placing a block of wood under one of the stacker wheels. The stacker rolled over the block and continued on until it contacted the power line. The victim was trying to stop its movement by pushing against one of the stacker's upright braces when the framework became energized.

Means of Prevention:

1. Training relevant to the hazards existing at the mine should be provided to all employees.
2. When equipment must be moved or operated near energized high-voltage power lines (other than trolley lines) and the clearance is less than 10 feet, the lines shall be deenergized or other precautionary measures shall be taken.



ABSTRACT OF INVESTIGATION

Date: March 23, 1988
Slide Number: 36 Fatal Case Number: 34
Accident Classification: Handling Material
Type of Mine: Cement Plant - Surface
Location: Texas

Age of Victim: 30
Total Mining Experience: 9 years, 6 months
Total Experience at this Mine: 9 years, 6 months
Total Experience this Job: 3 years, 6 months
Number Employed at Mine: 154
Number Working at Time of Accident: Unknown
Time of Accident: 3:00 a.m.

A shift production foreman was seriously injured when he was burned by hot kiln dust. He died on September 10, 1988 of complications resulting from the burns he had received on the day of the accident. The victim and a kiln helper were unplugging a cement calcining kiln feed spillage hopper and chute when the plug-up unexpectedly broke loose. He had positioned himself on top of the dumpster used to collect spillage from the feed end of the kiln. A slip seal used to prevent the escape of hot dust between the spillage chute and the dumpster was not lowered into place. When the victim struck the side of the spillage chute with a sledge hammer, the plug-up broke free and a large volume of hot dust engulfed the victim.

Means of Prevention:

1. Special protective clothing shall be provided and used whenever hazards of process or environment are encountered that are capable of causing injury or impairment.
2. Safe procedures should be established and enforced that will protect all miners from the hazards of hot dust.



ABSTRACT OF INVESTIGATION

Date: September 13, 1988
Slide Number: 37 Fatal Case Number: 35
Accident Classification: Hoisting
Type of Mine: Cement Plant - Surface
Location: Alabama

Age of Victim: 26
Total Mining Experience: 4 years, 6 months (Elevator maintenance)
Total Experience at this Mine: Unknown
Total Experience this Job: 8 months (Contractor Co.)
Number Employed at Mine: 111
Number Working at Time of Accident: Unknown
Time of Accident: 1:10 p.m.

A repairman helper, employed by an independent contractor, was fatally injured when an elevator car moved down and pinned him between the car and a support in the elevator shaft. The victim and a coworker were installing a new governor control rope on the elevator. An elevator control device had been placed in the inspection mode, but because of improper electrical installation, the device failed to prevent car operation from other locations. The victim was leaning in under the car trying to reach a rope connection when someone apparently pushed the call button causing the car to move downward.

Means of Prevention:

Repairs or maintenance on machinery or equipment shall be performed only after the power is off and the machinery or equipment is blocked against hazardous motion. To permit testing or adjustments, machinery or equipment motion or activation is permitted provided persons are effectively protected from hazardous motion.



ABSTRACT OF INVESTIGATION

Date: December 22, 1988

Slide Number: 38 Fatal Case Number: 47

Accident Classification: Other (Pedestrian/Private Auto)

Type of Mine: Taconite - Surface

Location: Minnesota

Age of Victim: 37

Total Mining Experience: 16 years

Total Experience at this Mine: 16 years

Total Experience this Job: 12 years

Number Employed at Mine: 498

Number Working at Time of Accident: Unknown

Time of Accident: 6:30 a.m.

A track boss was fatally injured when he was struck by a private automobile while walking on a mine road. The victim was walking with the traffic flow and was wearing dark clothing. A private automobile driven by another mine employee approached from behind and struck the victim. The road conditions were generally good, with some blowing snow, and it was dark. The driver of the auto stated that he may have been blinded by oncoming traffic momentarily and never saw the victim until he hit him.

Means of Prevention:

Persons walking along roadways at night should wear light colored clothing and should face oncoming traffic.

